End Semester Examination

(20cys203)

Name: Perla Sai Nikhil

Roll no.: CH.EN.U4CYS20058

(1) Given -

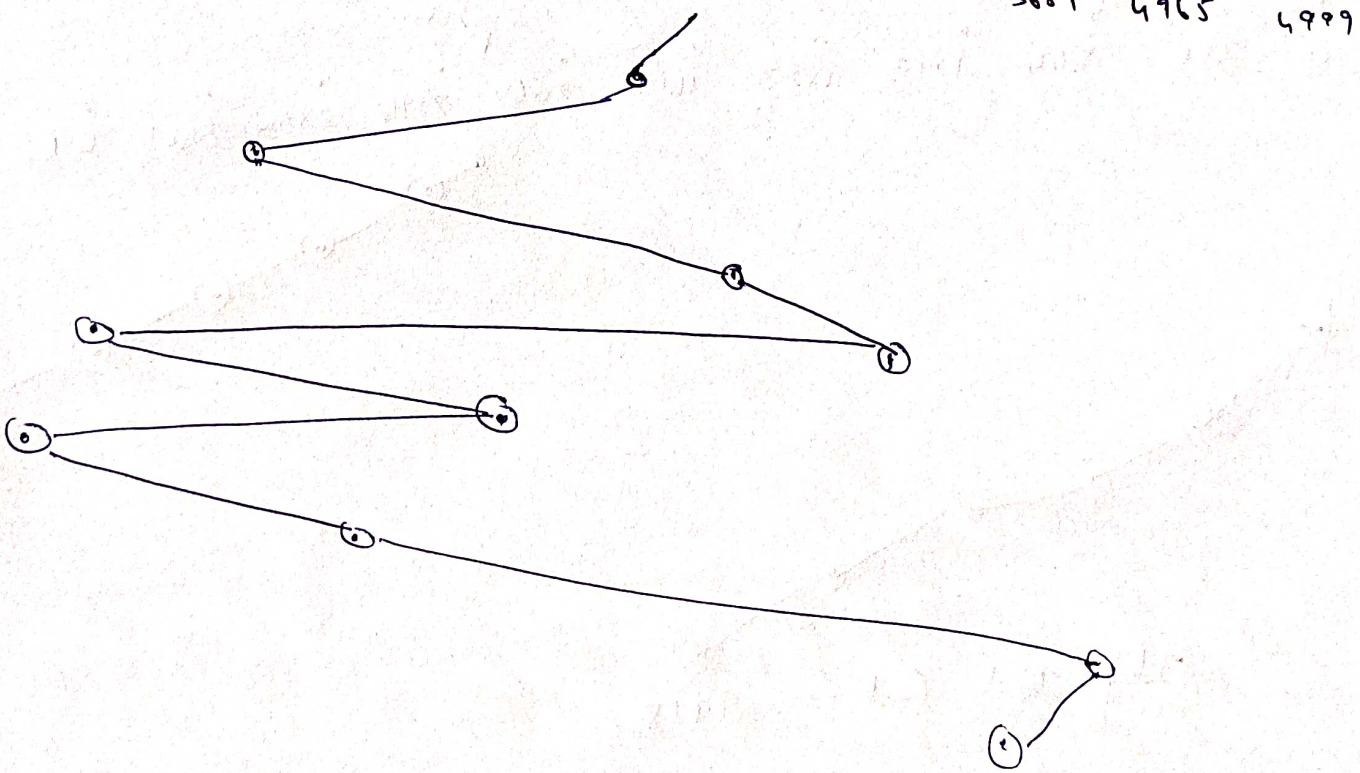
Total no. of cylinders = 5000

Currently serving = 2150

i) FCFS

2069 1212 2296 2800 544 1618 356 1523 4965 3681

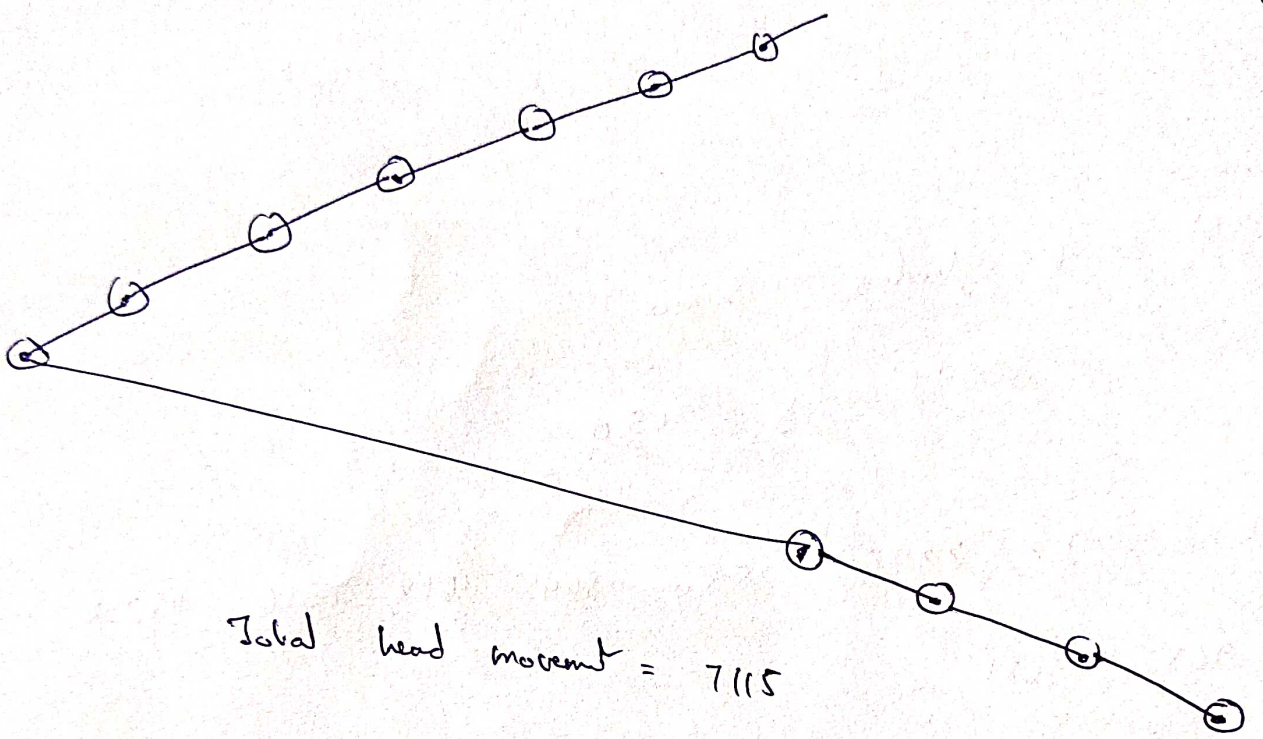
0 356 544 1212 1523 1618 2069 2150 2296 2800 3681 4965 4999



Total head movement = 13011

b) SCAN

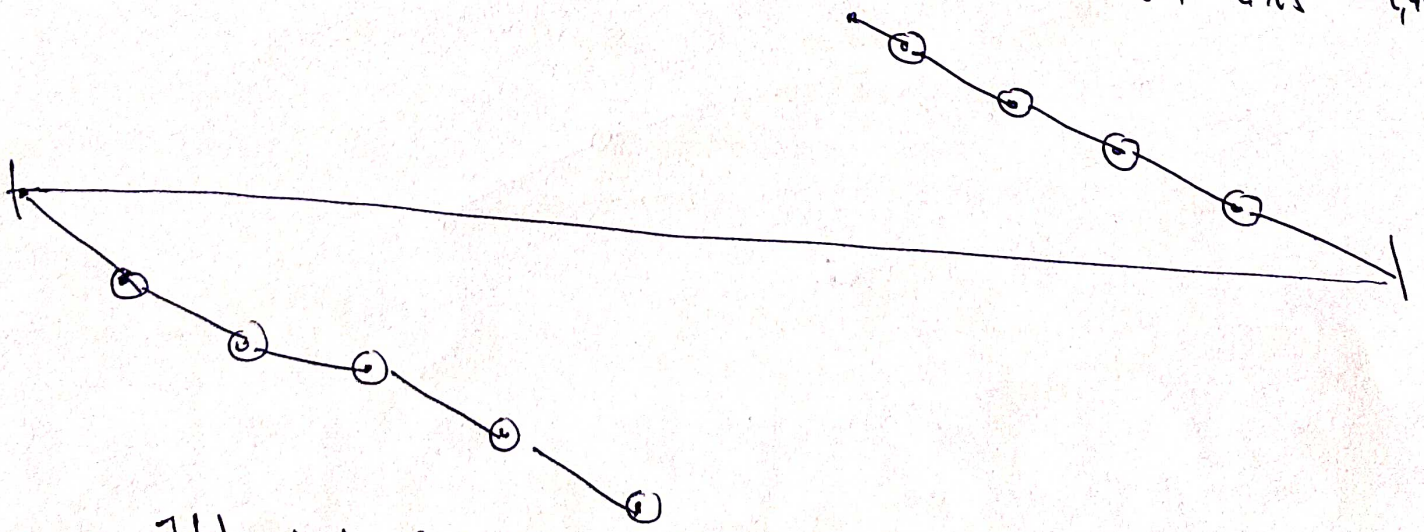
0 356 544 1213 1523 1618 2069 2150 2276 2800 3681 4965 4999



Total head movement = 7115

c) C-SCAN

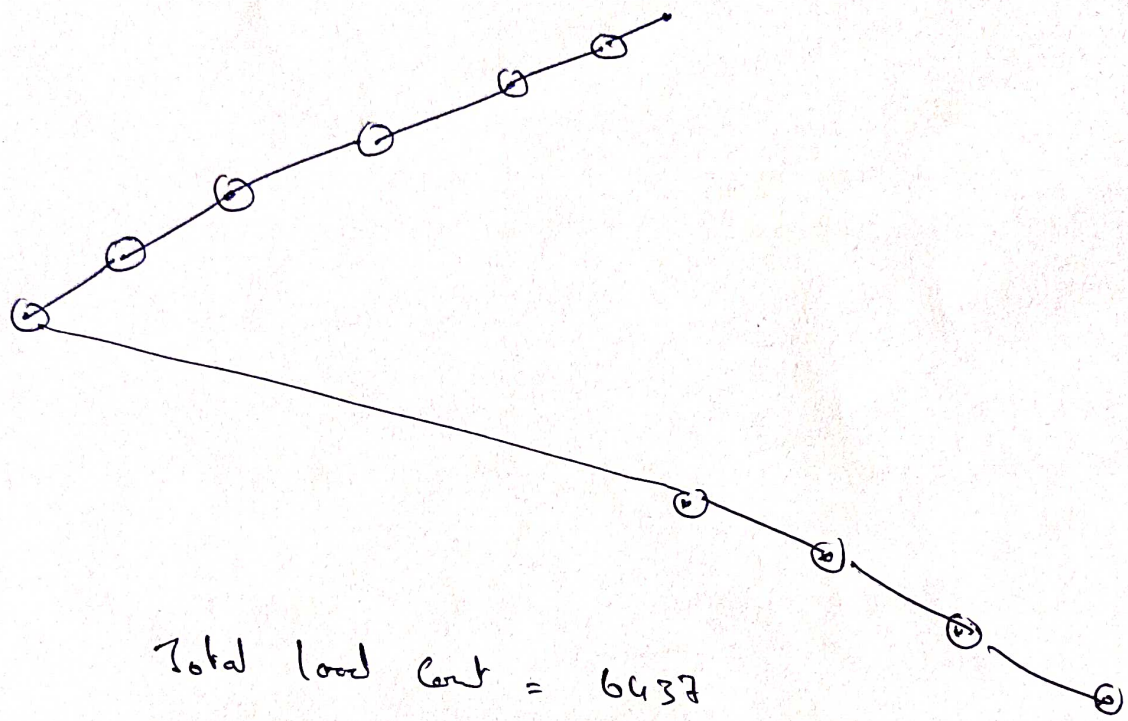
0 356 544 1213 1523 1618 2069 2150 2276 2800 3681 4915 4,999



Total head Count = 9918

d) Look –

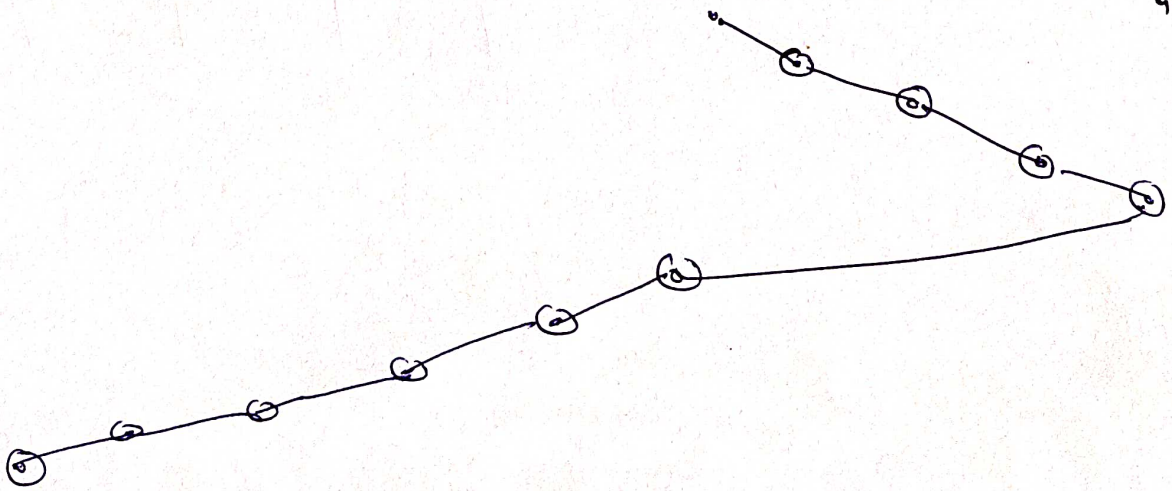
0 368 544 1212 1523 1618 2067 2150 2296 2800 3681 4965 4999



Total load cost = 6437

e) C-look –

0 368 544 1212 1523 1618 2067 2150 2296 2800 3681 4965 4999



Total head cost = 7492

(2) Bankers algorithm –

	Allocation	Max	Available	Need
	A B C D	A B C D	A B C D	A B C D
T_0	0 0 1 2	0 0 1 2	1 5 2 0	0 0 0 0
T_1	1 0 0 0	1 7 5 0		0 7 5 0
T_2	1 3 5 4	2 3 5 6		1 0 0 2
T_3	0 6 3 2	0 6 5 2		0 0 2 0
T_4	0 0 1 4	0 6 5 6		0 6 4 2

a) Need column.

b) The system is in safe state.

Because Available is (1,5,2,0) with this T_0 & T_3 can complete their work and can realise their resources and Now we can able to complete all other processes with out deadlock.

c) Request (R1) – (0, 3, 1, 0) My roll no. is 58 and 58 % 3 = 1, 58 % 5 = 3

$\therefore$ $R_1 \leq$ Need, $(0,3,1,0) \leq (0,7,5,0)$

$R_1 \leq$ avaiable $(0,3,1,0) \leq (1,5,2,0)$

avaiable = avail – req

$= (1,5,2,0) - (0,3,1,0) \Rightarrow (1,2,1,0)$

$allocation_1 = allocation + request$

$= (1,0,0,0) + (0,3,1,0)$

$= (1,3,1,0)$

$need_1 = need_1 - req_1$

$= (0,7,5,0) - (0,3,1,0)$

$= (0,4,4,4,0)$

∴ The request can be granted immediately, the new value of

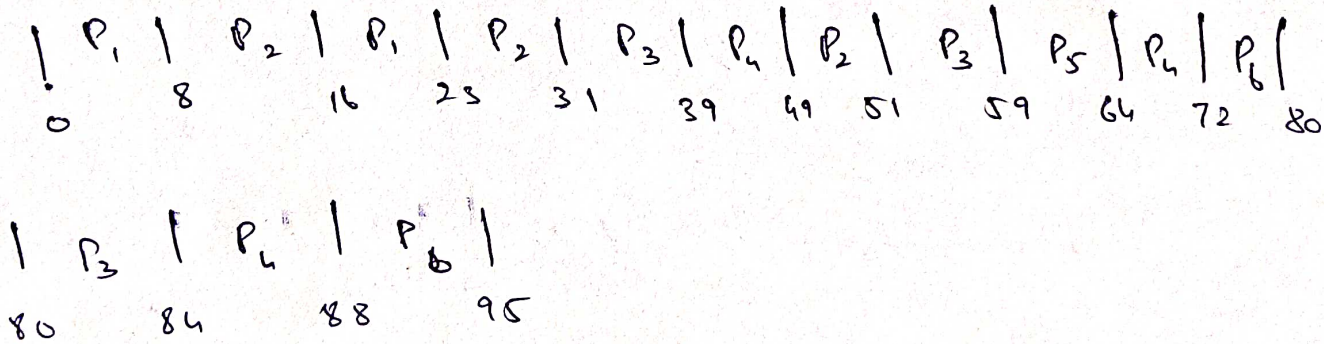
(3) Time quantum = 58/10 = 8

Proc	A.T	B.T	Priority	Completion time	TAT	WAT
P_1	0	15	8	23	23	8
P_2	0	20	3	51	51	31
P_3	20	20	4	84	64	44
P_4	25	20	4	88	63	43
P_5	48	5	5	64	19	14
P_6	55	15	5	95	40	25

Avg TAT = 43.33

Avg WAT = 27.5

Gantt chart —



(4)

i) FIFO

4	2	1	7	9	8	3	5	2	6	8	1	0	7
4	4	4	7	7	7	3	3	3	6	6	6	0	0
	2	2	2	9	9	9	5	5	5	8	8	8	7
F	F	1	1	1	8	8	8	2	2	2	1	1	1
		F	F	F	F	F	F	F	F	F	F	F	F

2	4	1	3	5	8
0	4	4	4	5	5
7	7	1	1	1	8
2	2	2	3	3	3
F	F	F	F	F	F

No. of page faults = 20

ii) LRU -

4	2	1	7	9	8	3	5	2	6	8	1	0	7	2
4	4	4	7	7	7	3	3	3	6	6	6	0	0	0
	2	2	2	9	9	9	5	5	5	8	8	8	7	7
F	F	1	1	1	8	8	8	2	2	2	1	1	1	2
		F	F	F	F	F	F	F	F	F	F	F	F	F

4	1	3	5	8
4	4	4	5	5
7	1	1	1	8
2	2	3	3	3
F	F	F	F	F

∴ No. of page faults = 20

iii) optimal (opt)

4	2	1	7	9	8	3	5	2	6	8	1	0	7	2
4	4	4	7	9	8	8	8	8	8	8	8	0	7	7
	2	2	2	2	2	2	2	2	2	2	2	2	2	2
		1	1	1	1	3	5	5	6	6	1	1	1	1
F	F	F	F	F	F	F	F		F		F	F	F	

4	1	3	5	8
4	4	3	5	8
2	2	2	2	2
1	1	1	1	1
F		F	F	F

No. of page faults = 16